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FOR MANAGEMENT IN ELECTRONICS, COMPUTER & SYSTEMS COMPANIES

OCTOBER 16, 1989

SPECIAL ISSUE

QUEST FOR QUALITY

Baldrige Award: The new national focus on quality

Xerox's drive for excellence pays off

David Kearns, Xerox's chairman and CEO

Electronic Business

FOR MANAGEMENT IN ELECTRONICS, COMPUTER AND SYSTEMS COMPANIES—WORLDWIDE

VOL. 15, NO. 20 OCTOBER 16, 1989

PAGE 50 Xerox chairman and CEO David Kearns: His visits to Japan to review quality principles culminated in the Xerox Leadership Through Quality program

COVER STORY

50 Back from the brink: Xerox redefines its notion of quality

"They simply were eating our lunch" is the way one Xerox official puts it. The era was the late 1970s, when the company whose name is synonymous with photocopying was steadily losing market share to its Japanese rivals. Such a painful revelation was gained through countless trips to Japan by Xerox chairman David Kearns and other executives — forcing the giant electronics company to step back and examine old habits, then set demanding new goals for quality.

17 Robert A. Mosbacher, U.S. Secretary of Commerce

The Malcolm Baldrige Quality Award "offers a unique mechanism for cooperation between business leaders and quality experts throughout the private sector and government."

19 Robert W. Galvin, Motorola chairman

"Leading the acceptance of the newest and best practices and processes for achieving quality is a responsibility of each individual manager."

24 New thinking on quality

Indeed, there is a quality revolution occurring today in the United States. No longer is quality simply seen as an added cost of making acceptable products, but extends to improving relationships with customers, suppliers and employees as well. This new thinking promises to transform the cultures of organizations, and, ultimately, could change American society.

34 Baldrige Quality Award: Industry's version of Oscar

How tough is winning the Malcolm Baldrige National Quality Award? Very tough, according to both winners and losers. Wrapping up only its second year, the program goes far beyond the public relations value of a national quality award.

44 Baldrige application process a long, rigorous examination

Although the 1990 Baldrige Award will not be presented for 13 months, it is not too early for companies to plan their entries. But the journey is taxing — from a comprehensive self-appraisal to site visits by Baldrige examiners.

60 Motorola's unique problem: What to do for an encore

As an inaugural Baldrige winner, Motorola may not compete again for five years. With its eyes no longer on the prize, can this champion stay in top form? Affirmative, says president and CEO George Fisher. Motorola is now shooting for the seemingly impossible goal of "Six Sigma quality" by 1992.

72 Solectron's Chen crusades for U.S. manufacturing excellence

The president of this San Jose contract manufacturing firm offers a solution — and a challenge: Blend the best of Japan and the United States and raise the status of manufacturing to the heights enjoyed by marketing.

80 Baldrige winners start ahead of the pack

While the Baldrige Award is far from a household name, it nonetheless has achieved a global following among electronics industry leaders. Win one and your company becomes a "quality guru," like Japan's best. Sure to follow are fame, fortune and a marketing bonanza.

88 Preachings of quality gurus: Do it right the first time

W. Edwards Deming, Philip B. Crosby, Joseph M. Juran and Armand V. Feigenbaum are widely viewed as four leading American pioneers of quality. They say U.S. industry is getting better in its quest for quality, but there's still a long way to go.

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Cover photograph: Jonathan Levine

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Robert Mosbacher, Secretary of Commerce: Baldrige Award joins government and industry

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Robert Galvin, Motorola chairman: Leads winner of inaugural Baldrige Award

PAGE 80 **Winners of the Baldrige award start ahead of the pack**

PAGE 235 **Bourns Networks' Bing Harding: Statistical process control is not quality assurance, it's a business philosophy**

101 Hewlett-Packard unravels the mysteries of quality
Spurred by the quick turnaround of a Japanese joint venture, the electronics giant is inspired to turn its attention to details — first hardware, now software.

111 These days, Intel thinks impatience is a virtue
The microprocessor maker is intent on designing its chips right the first time. The new motto is $(PDQ)^2$ — "Perfect Design Quality, Pretty Darn Quick."

121 Spreading the gospel: Quality is everybody's business at TI
Texas Instruments is not a flashy company. But one thing that rouses its normally phlegmatic executives is the issue of quality. Carrying the banner are 4,300 corporate-wide teams.

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Several experts who follow electronics say that, while quality has improved throughout the industry, measuring the effectiveness of programs is debatable.

136 Credo at small companies: Quality equals simplicity
For executives at smaller electronics firms, the quantitative side of quality programs — paperwork — is too much of a burden. The idea is to keep quality programs simple. The slogan "quality is everyone's job" rings especially true at small companies.

149 The Pentagon revives its interest in quality
Compared with industry, the U.S. military lags far behind in the quest for quality. But with a new quality czar behind the wheel, Defense now promises a big push. Over the next few years, the goal is to chip away at layers of bureaucracy in an attempt to effect a cultural change.

161 Rockwell commits to organizational excellence
In December 1987, Rockwell International published a one-page document that declared to the world what the aerospace and electronics giant stands for. Rockwell's credo is the cornerstone for a new quality culture that is rooted in "organizational excellence."

191 At Compaq, reaching the top begins at the bottom
Trying to top IBM on quality is no mean feat. Whether in manufacturing or human resources, at Compaq the process starts with the worker.

199 Avnet, other distributors getting into the groove
Distributors regularly trail the rest of the electronics industry in major trends, and quality is no exception. But they are learning that poor quality costs dearly.

209 Design automation vendors define quality on own terms
In software, standard definitions of quality simply do not apply. Suppliers of design tools must develop their own procedures to track performance.

222 Education: At the heart of quality
For years, U.S. industry has done a good job of training workers. But now, in an increasingly competitive global marketplace, training alone just won't cut it. Electronics industry executives are realizing that while training teaches skills, it is education that lays foundations and creates a winning culture.

Quest for Quality

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PAGE 222 Education, not training, lays foundations and creates winning cultures

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At the resistor networks unit of this components firm, an obsession with statistical process control data has yielded new business and double-digit growth.

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Having survived a painful production transition, the rigid disk drive maker is learning from its Japanese manufacturing partner that the bottom line to high yields is quality.

249 AMP brings quality to the countryside
The world's leading connector maker employs a strong work ethic and a streamlined organization to boost quality management and cut costs.

257 Signetics brings quality to the Old World
The U.S. chip maker's quality program has been so successful over the years that now its Dutch parent N.V. Philips is transplanting it to Europe.

263 European companies join the quality crusade
Bracing for tougher global competition in a unified marketplace in 1992, Europe's corporate giants have begun spreading the quality crusade to top management.

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Meeting specs? Is that all there is to quality?

Whatever happened to zero defects? An informal ELECTRONIC BUSINESS survey reveals that the concept is hardly uppermost in the minds of some U.S. electronics executives

BY JOHN KERR

It is not encouraging. Many U.S. electronics firms still view quality as a process of meeting specifications, not of exceeding them; neither are they striving for zero defects nor anticipating customers' future needs.

That's the key conclusion from an informal telephone poll of top electronics industry executives conducted recently by ELECTRONIC BUSINESS. The poll, conducted in mid-July, drew 65 detailed responses from chief executives, presidents, executive vice presidents and other senior staffers of major industry players.

While there is much to prove that electronics managers have the customer firmly in mind, their responses reveal a fixation with "conformance" and "compliance" with customer specifications. The terms are depressingly passive. The managers' emphasis seems to be on toeing the line; their goals — such as levels of products returned — would make a proselytizer of quality such as W. Edwards Deming weep.

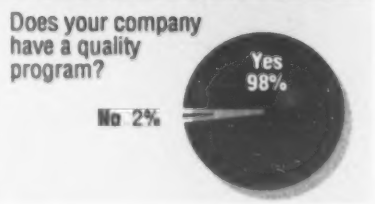
Here is how one top manager defines quality: "It is the production of adequate products and services that are reliable, maintainable and reusable." Tries another: "Our goal is to have equipment operational on delivery 99% of the time."

In today's dog-eat-dog market, "adequate" translates into "also-ran." And 99%, if applied to landings at Chicago's O'Hare Airport, would still mean 20 unsafe landings a day.

The executives' answers show scant recognition that quality is a moving goal or that defects can be driven out. It is easy to distinguish, by the replies, those who live by quality and those who have to scramble to patch together a definition. The poll wasn't a test, but full marks nevertheless to those who described quality as the vehicle for meeting and then exceeding customers' specifications via every one of their corporate departments.

The poll turned up other interesting findings: as a kind of Oscar of quality, the Malcolm Baldrige National Quality Award hasn't, in its two short years, attained star status itself. It clearly involves a substantial corporate commitment of time and money: a tiny percentage of the electronics industry plans to enter for the award this year, although there is much more participation planned from 1990 onward. And it is long overdue; many in the U.S. electronics sector believe that the Baldrige Award, with its unique incentive mechanisms, provides a powerful stimulus to better the quality of U.S. goods and services overall.

Everyone loves quality. And then?

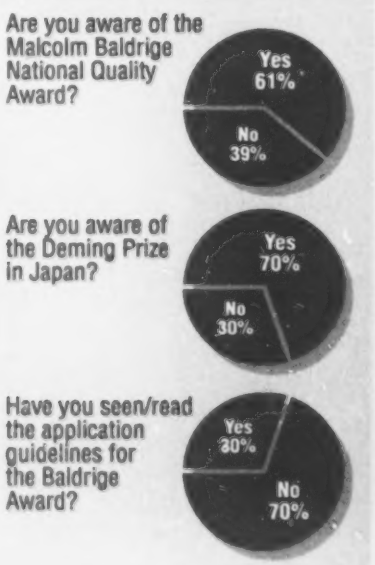


This is rather like asking: "Do you have lungs?" An apple-pie issue, quality at least acquires nominal program status in virtually every U.S. electronics firm. What's unclear is how much is lip service.

Some respondents described their programs in terms of the quality handbooks they live by, the final test operations they run, the vice presidents for quality they had appointed, the quality assurance auditors they send out, the statistical process control manufacturing procedures they've implemented. Others broadened the scope to put sales and service under the quality-program umbrella as well.

Defense contractors tended to define their programs by the mil-spec boundaries they must meet. Some others put it in terms of customer-imposed quality standards. One nice response: "Our quality-control program runs through the whole company. Workers are encouraged to think of the next guy on the line as the customer."

Baldrige Award? Great idea, say those who've heard of it


Are you aware of the Malcolm Baldrige National Quality Award?
Yes 61%
No 39%
Are you aware of the Deming Prize in Japan?
Yes 70%
No 30%
Have you seen/read the application guidelines for the Baldrige Award?
Yes 30%
No 70%

Perhaps the U.S. Commerce Department should have put more taxpayer money into publicity, because the Japanese prize that bears quality dean Deming's name is much

better known than the Baldrige Award, now being sponsored for the second year by the U.S. government. Far fewer people have actually seen the Baldrige guidelines: under 30% of respondents.

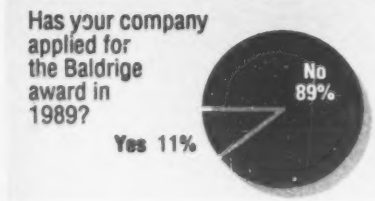
Conclusion: yes, word of the Baldrige competition is rippling out rapidly, but the Commerce Department could perhaps put more weight behind its publicity — at risk of making its judging job tougher. Why? Because the very act of studying the guidelines, let alone going through the rigamarole of application, is itself a quality consciousness-raiser.

At least one Baldrige Award mechanism has kicked in already: the requirement that winners — aspirants, too — get their suppliers to go for it. Three respondents mentioned exhortations from Motorola Inc. and IBM.

Respondents were overwhelmingly positive about the Baldrige Award. "Long overdue," "Excellent idea" and "It is a very noble goal" were typical comments. There was even more enthusiasm for the Deming Prize: "It has pushed the Japanese to produce efficient products at very low cost," said one executive. Remarked another: "It's a very good idea. We could have had it here if we'd listened to Mr. Deming 30 years ago."

Most executives observed that the Baldrige Award guidelines are long, but well-developed and thought through.

Who's applying for the Baldrige Award?

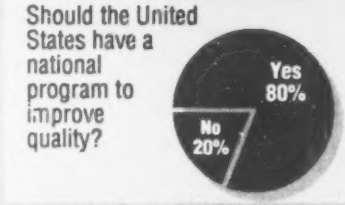


At first glance, the low proportion of 1989 applicants for the Baldrige Award is disappointing. But it is likely that this reflects the rigor of the application procedure more than the award's perceived worth.

There is also the time factor: It takes months of preparation before a company can call itself ready.

Executives offer recommendations on quality

What about a U.S. national program to improve quality?



Respondents voted overwhelmingly for some kind of national quality program, but their recommendations were as varied as the companies they work for. One consistent theme is that government should not directly run such a program, but that industry should take the initiative itself. And many of those polled believe that a version of the Deming Prize should be offered as an incentive in the United States, as it is in Japan. Here's a sampling of the suggestions made by senior electronics industry executives:

"The real solution is lower interest rates. Make capital more available to improve equipment to turn out better products."

Marshall Butler, chairman and CEO, AVX Corp.

"Large purchasers should require their vendors to take on quality programs."

Steven Goldby, president and CEO, Molecular Design Ltd.

"It should be a cooperative program among related companies."

Sidney Jerson, chairman, Astrocom Corp.

"The government should recruit a leader like Lee Iacocca. We need a popular, motivating figure to get the program rolling."

Malcolm Green, CEO, Informer Computer Terminals

"It should strive to make products that have zero defects. Statistical process control is an excellent tool that the government should promote."

Frank Fuggini, vice president for operations, Kollmorgen Corp. PCK Technology division

"There should be some meaningful education offered to companies on how to improve quality, not just waving of the flag."

Richard Tanaka, president, Lundy Electronics and Systems Inc.

"Make it industry-sponsored; government involvement would just screw it up."

T. Kevin Dunigan, president, Thomas & Betts Corp.

"Private consulting companies should get more involved and help set guidelines for manufacturing companies on quality."

Herbert Amster, CEO, Irwin Magnetic Systems Inc.

"It should move companies away from Wall Street quarterlies."

R.F.Carlin Jr. COO, Vitro Corp.

"Private business should create the 'Quality Commission' — like the baseball commissioner — to inspire and support the program."

Alan Devine, vice president for operations, Corporate Software Inc.

"The government should not fund improvements, but they should provide conferences that will outline the objectives of the improvement program."

Dave Beard, director of quality assurance, Scope Inc.